**Mark-Up**
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EPA-Revised/EPA Comments on
Proposed Test Pit/Trench Investigation

This letter presents the scope of work for a test pit and test trench investigation of parts of the Site. Conestoga-Rovers & Associates Inc. (CRA) has prepared this letter on behalf of the South Dayton Dump and Landfill Potentially Responsible Party Group (PRP Group). The PRP Group has prepared this scope of work of based on the February 12, 2008 discussions between the PRP Group and United States Environmental Protection Agency (USEPA) regarding the additional data CRA would like to collect ~~needed~~ for ~~a~~ the streamlined Feasibility Study (FS) for the Site. This Letter Work Plan incorporates applicable USEPA comments on the Remedial Investigation/Feasibility Study (RI/FS) Work Plan (letter from Karen Cibulskis USEPA, to Steve Quigley, CRA dated January 9, 2008) and USEPA guidance for conducting test pit investigations at municipal landfill sites (USEPA 1991).

The objectives of the test pit and test trench excavations and sampling are as follows: ***(The purpose of these investigations is still not clear in terms of how CRA plans to use this data for the FS. Please explain what overall questions CRA is trying to answer for the FS. Please explain how CRA wants to use this data for the FS.)***

- Identify the nature and delineate the extent of various types of landfilled materials above the water table;
- Characterize landfill materials above the water table;
- Characterize leachate from unsaturated landfilled material;
- Assess specific areas of the Site previously identified as specific areas of concern [i.e., Valley Asphalt drum removal area, Valley Asphalt former underground storage tank (UST) area, Custom Delivery UST area, Lot 4423, etc.); and
- Identify Site areas, which may require further investigation. ***(Please explain what this means. What Site areas? What investigations? Groundwater? Leachate? Surface water and sediment? Hot spots?)***

The test pit and test trench investigations will be completed after the Site Land Survey, Geophysical Investigation, and Leachate Seep Assessment have been completed. A schedule, including a Gantt chart, for the investigative activities to be completed at the Site in 2008 will be prepared and submitted under a separate cover. The locations of the test pit and test trenchs maybe relocated based on the results of these previously mentioned investigations and upon consultation with the USEPA.

## TEST PITS/TEST TRENCHES

Test pits are proposed in locations where waste is known to exist, but where CRA would like to collect additional information about the depth ~~or~~ and nature of the fill ~~is not known~~ above the water table. ***(Why? Please explain how additional information about the depth and nature of fill above the water table at these locations will be used in the streamlined FS. Please explain why CRA needs this data and how it will be used to develop alternatives.)*** Six test pits will be excavated in the central portion of the Site in the vicinity of the former Air Curtain Destructor (ACD) to determine the types and depth of fill in the area and to characterize the fill. ***(The proposed test pits are a minimum of 500 to over 1000 feet from the ACD and not really "in the vicinity of the ACD).*** Nineteen test trenches will be excavated throughout the Site to determine the types and depth of fill in ~~other~~ these areas of the Site and to characterize the fill at these locations. The locations of the test pits and test trenches will be finalized based on the results of the geophysical investigation (the USEPA may be asked to approve moving, relocating or adding test pit and test trench locations based on field observations, geophysical investigations etc). The nature and depth of fill material above the water table will be visually identified and recorded. Test trenching will focus on the perimeter and beyond ~~of the Site area as defined by historical information and aerial photograph analysis~~ the Respondent's Direct Contact Presumptive Remedy Area as defined in the RI/FS Statement of Work (SOW***). (Again, the objectives of this work are still not clear. Is CRA still hoping to demonstrate that only a soil cover is needed in the DC-PRA area? How would a soil cover in this area comply with federal and state ARARs?)*** In addition, the test trenching will identify and characterize fill material ~~located~~ at locations along the western embankment of the Site. Excavations will be completed to the depth of the water table, where possible. ***(Please explain what "where possible" means. What would prevent excavations from continuing down to the water table? What contingencies does CRA have in the event excavations cannot continue down to the water table. Soil borings? Would CRA attempt to use shoring? Again, some of this depends on the specific objectives of the test pits and trenches)*** The potential impacts from saturated fill materials will be assessed as part of the groundwater investigation proposed for the Site (under separate cover).

Test pits and test trenches will be excavated in the locations shown on Figure 1. Each test pit will be approximately 6 long by 4 feet wide and will extend to the water table, if the excavation can be completed safely to that depth and the excavator is capable of reaching that depth. (***Again, please explain what might cause the test pit to be unsafe, and why the excavator might not be capable of reaching the water table. Also, what contingencies does CRA have in the event the test pit is not safe or cannot reach the water table? How deep should the excavator be able to go? For example, at MW-203, there is expected to be 13.5 to 21.5 feet of fill material above the water table depending on groundwater elevation. Will the excavator be able to go***

***down that far?)*** Each test trench will be approximately 30 feet long by 3 feet wide, and will extend to the water table (if this can be excavated safely) and horizontally to the visual limit of fill ***(Limit of fill based on what? How will this be determined? What observations will CRA be looking for to determine whether the limit of fill has been reached?).*** If the horizontal limit of fill is not visually determined in any planned 30-foot trench, to the extent practical, the test trench lengths will be extended to attempt to visually locate the edge of the fill. ***(Please explain when it might not be practical to extend a trench to the horizontal limit of fill, and how CRA would determine the edge of fill at trench locations where it is not practical to extend the trench to the edge of fill.)*** The nature and depth of fill material will be visually identified and recorded. (***Please explain what CRA will be looking for/how CRA will "visually characterize" the waste, and the criteria CRA will use to visually identify the depth of fill.)***

Sampling and analysis of material collected from the test pits and trenches will also allow for the further characterization of sampled fill materials at these locations ~~and allow for the determination any direct contact, ingestion, and migration exposure risks~~.

## TEST PIT AND TRENCH EXCAVATION PROCEDURES

An excavator or backhoe will be used to excavate the test pits. The test pit excavation procedures are as follows:

1. Each test pit will be assigned a unique identification number. Prior to starting the test pit excavations, the locations of each test pit and trench will be staked in the field using the locations identified on Figure 1.
2. The area immediately adjacent to the test pit will be covered with two layers of 6-mil polyethylene sheeting for stockpiling excavated waste and fill. The polyethylene sheeting and excavation spoils will be placed downwind of field personnel and in such a manner that water runoff from the waste material will be directed back into the excavation. If possible, fill/waste material temporarily stockpiled on the liners will be backfilled into the open excavations before the contractor leaves the Site for the day. If the waste material cannot be backfilled at the end of the workday, the contractor will ensure the material is covered securely with a polyethylene liner to control potential emissions and to minimize the exposure of the material to rainwater.
3. The test pits will be a minimum of 4 feet wide and will extend to the depth of the water table, where possible and feasible. (***Again, what is meant by "where possible and feasible". What contingencies does CRA have for collecting information about the nature and depth of landfilled materials above the water table at test pit locations if it is not possible or feasible to excavate the test pit down to the water table).*** The lengths of individual test pits will be determined in the field by

the field representative based on conditions encountered during excavation. ***(Please explain how various conditions encountered during excavation could affect the length of individual test pits).*** Excavation at each location will be completed in a controlled manner so as to minimize damage to any potentially intact drums.

4. Empty drum overpacks will be maintained at the Site during excavation. Should an intact waste container be damaged during excavation the drum management procedures presented in Attachment A will be implemented.
5. Each test pit will be backfilled with the excavated materials in reverse order to that in which they were removed. The test pits will be restored to match surface conditions prior to excavation.

Test trenches will be excavated in the same manner as test pits except that test trenches will be excavated in a continuous length of up to 30 feet. ***(Not consistent with previous paragraph which states trenches will extend to horizontal limit of fill. Please correct.)*** The test trenches will be used to determine the limits of the fill or confirm substantive changes in the nature and extent of the fill material. ***(Please explain/give some examples of what a "substantive change" in the nature and extent of fill material might be).***

## TEST PIT AND TRENCH SAMPLING

The following sampling procedures and associated tasks will be performed as part of the test pit and test trench investigation.

1. CRA will prepare a photographic log of each test pit excavation during its progression. The photographic record will list the date of each photograph, a specific description of what the photograph depicts, its location, and the photographer.
2. The dimensions of each excavation and a description of the materials encountered during excavation will be recorded on a Test Pit Stratigraphy log, an example of which is contained in Attachment B.
3. Samples of the fill and waste materials will be collected, from each sidewall and the base of the excavation during the excavation. A maximum ***(should this be minimum?)*** of one sample collected from each test pit and two samples collected from each test trench will be submitted to an analytical laboratory for fill/waste characterization analyses. The specific material selected for sampling and number of samples will be determined in the field by the CRA field representative in consultation with the USEPA Site representative(s). Sample selection will be based on the visual appearance of the material (for example, color, staining, grain size), location of the material prior to removal (for example, adjacent to drums or base of excavation), and field instrument measurements [i.e., photo-ionization detector (PID) readings]. ***(Still not clear what CRA is doing. Is CRA submitting a sample of each visually distinct waste***

***type for laboratory analysis? Or collecting a sample of each visually distinct waste type for headspace analysis, with laboratory samples to be submitted based, in part on headspace readings?)*** The observations will be recorded in the Test Pit Stratigraphy log. The samples will be collected directly from the bucket of the excavator and/or the stockpiled spoils. The sample collection procedures will be the same as those specified in the Field Sampling Plan developed and previously submitted with the draft Remedial Investigation/ Feasibility Study Work Plan (CRA, March 2008 to be resubmitted). ***(The sample collection procedures for this work must be consistent with EPA's comments re: test pit/trench sampling. Revised procedures will need to be submitted for EPA approval).*** Fill and waste materials samples will be collected in ~~order~~ an attempt to characterize distinct fill zones or landfilled materials. ***(Please explain the criteria CRA will use to determine there are distinct fill zones, and whether fill from different areas is the same).*** Where possible, samples of the same distinct fill zones or landfilled materials will be collected from multiple test pit and test trenches. ***(Please explain what is meant by "where possible". Where will this be possible and where will this not be possible?)***

4. In addition, a portion of each sample will be placed in a separate container for headspace analysis using a PID. Results of the headspace analysis will be recorded in the Test Pit Stratigraphy log. A representative sample from each distinct fill or waste type observed in each test pit and test trench will be retained. ***(Retained how and why? In appropriate sampling containers and at appropriate temperatures so the samples can be submitted for laboratory analysis?)*** Field observations and field screening results will be reviewed with the USEPA's Site representatives on a daily basis.
5. Daily proposed sample submissions to the analytical laboratory will be reviewed with the USEPA's Site representatives for agreement. At a minimum, samples for each distinct fill or waste type will be submitted for the following analyses: volatile organic compounds (VOCs), metals, semivolatile organic compounds (SVOCs), and pesticides. ***(Why not PCBs? PCBs were detected in the Valley Asphalt composite drum sample at 75 mg/Kg and were found in other Site areas above industrial screening levels and probable effects concentrations for sediment. These analyses will also not give any preliminary indications of the absence of dioxin-furans, asbestos, or radioactive foundry sand).*** In addition, multiple samples of similar fill or waste types will be submitted to assess the variability of these materials within the Site. A sampling summary is presented in Table 1.
6. Should leachate seeps be identified in any of the test pits or test trenches, samples will be collected. For shallow leachate seeps that can be reached by hand from the edge of the test pit or trench, the area located immediately beneath the seep will be dug out using a clean shovel or trowel. A clean sample jar or pail will be set into the dug out area and the

liquid will be allowed to accumulate in the container. If the depth of the excavation prohibits field personnel from safely conducting the liquid collection, sufficient saturated material in and around the seep will be excavated and placed on a polyethylene sheet and the liquid allowed to drain into a container. A field blank sample of distilled deionized water poured onto clean polyethylene sheeting will also be collected. The liquid will be transferred to sample containers for submission to the analytical laboratory. As the volume of liquid may be limited, prioritization of requested analyses for the sample will be as follows: VOCs, metals, SVOCs, and pesticides. A sampling summary is presented in Table 1.

7. A sample that is representative of the samples of the fill types (i.e., construction and demolition debris, ash, and cinders, etc.) collected from the test pits and test trenches will be prepared and submitted to the analytical laboratory for Synthetic Precipitate Leaching Procedure (SPLP) preparation with subsequent analysis of the resultant leachate for VOCs, SVOCs, and metals. ***(Since the materials are being collected from the landfill they should be analyzed for TCLP not SPLP. SPLP is more appropriate when analyzing leaching from contaminated soil, not landfilled waste material. Also, please clarify – is one leaching sample being collected from each visually distinct waste type from each excavation, or is only one leaching sample being collected from a composite of each waste type together?)*** The parameters and associated analytical methods are specified in Table 1.
8. Duplicate photographs and the corresponding photographic record will be provided to USEPA and OEPA at the completion of this investigation.

The following protocol will be used to determine the number of samples to be submitted for laboratory analysis. Specific samples to be submitted for laboratory chemical analysis will be selected by the CRA field representative in consultation with the USEPA's Site representative(s) on a daily basis. Depending on the nature of materials encountered in an individual test pit, the number of samples for each medium may vary. For example, if no drums or only minimal amounts of drum remnants are observed in a test pit, samples of drum contents would not be collected. In addition, the number of samples submitted for laboratory chemical analysis may increase or decrease depending on headspace results, field observations, the spatial distribution and types of existing data, and the number and types of samples collected. A decrease in the number of samples is more likely to occur if specific patterns are recognized in the types and distribution of landfill contents.

The intent of the test pit and test trench investigation is to identify areas, which exhibit similar characteristics (i.e., visual, physical and chemical composition). Test pits may be grouped together based on similar field observations. Where grouping occurs, samples representative of the entire grouping will be submitted for chemical analysis. The CRA field representative, in consultation with the USEPA site representative will establish the groupings, identify which test pits

and test trenches are required for a given grouping, and select fill and waste samples for submission to the analytical laboratory for analysis. Inherent in the grouping of waste types is the presumption that analytical data and other results obtained will be representative of the entire grouping. This presumption will be tested through replicate sampling in wide spread waste types. The test pit and test trench locations that are grouped together along with the corresponding sample identification number(s) will be identified in the Test Pit Stratigraphy log. Sample selection will be performed such that representative fill and waste types from multiple different locations are selected. ***(Please explain the purpose of this sampling. How will this data be used for the FS? Without analytical data from each waste type at each test pit it is not clear how it could be determined that visually similar waste or specific areas of the Site are similar in chemical composition.)***

All work will be performed in accordance with the Field Sampling Plan, Quality Assurance Project Plan, and Site Specific Health and Safety Plan pending USEPA's approval of these documents.

## SCHEDULE

The test pit and test trench investigation work will commence within two weeks of the submission of the Survey and Geophysical Survey report to the USEPA. Field activities will be completed within a two-week period of time. The PRP Group will provide the USEPA with written notification one week in advance of the initiation of these field activities.

## REPORTING

Results of the test pit and test trench investigation will be summarized and presented in a report. The report, which will include a description of the field work completed, any deviations from the is letter Work Plan and the rationale behind the change, photographs, logs, analytical summary tables, and analytical data reports, will be provided to the USEPA within one month of the completion of the proposed work.

**Table 1:**

***Based on the Notes, for test pits "TAL Metals" should be "TAL Inorganics" and for test trenches "VOCs" should be "TCL VOCs", "SVOCs" should be "TCL SVOCs" and "Metals" should be "TAL Inorganics"***

***Drum contents should be analyzed for PCBs. The composite sample from the 5 Valley Asphalt drums contained 75 mg/Kg PCBs.***

**Attachment A:**

***What is the purpose of the drum sampling? Intact drums should also be sampled.***